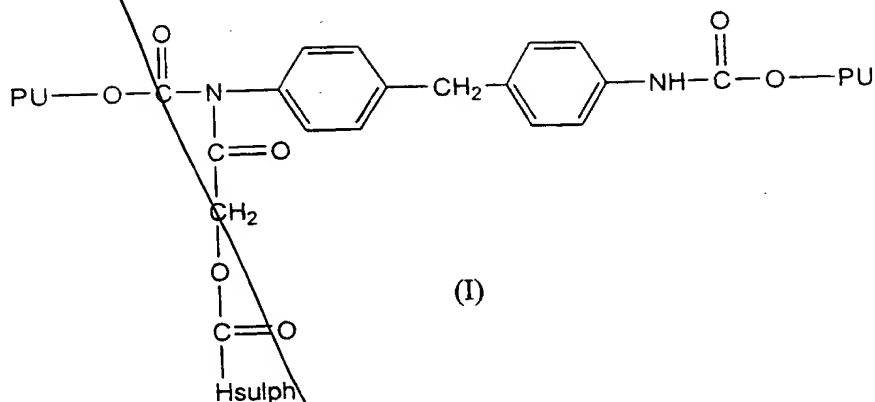


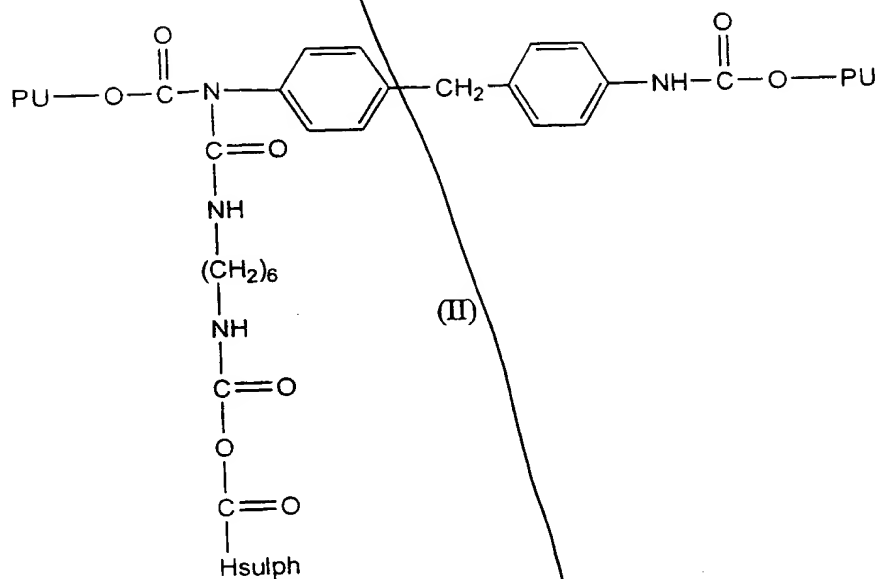
## CLAIMS

- 1 1. A polyurethane bound covalently to sulphated hyaluronic acid or to a sulphated  
2 hyaluronic acid derivative.
- Sub B3  
1 2. The polyurethane according to claim 1, wherein the starting polyurethane  
2 comprises the repeating unit 4,4'-methylenebis (phenyl isocyanate).
- sub A1  
1 3. The polyurethane according to any of claims 1 and 2, wherein the starting  
2 sulphated hyaluronic acid is selected from the group consisting of :  
3 A<sub>1</sub>) O-sulphated hyaluronic acid, and  
4 B<sub>1</sub>) N-sulphated hyaluronic acid.
- 1 4. The polyurethane according to any of claims 1 and 2, wherein the starting  
2 sulphated hyaluronic acid derivative is selected from the group consisting of :  
3 A<sub>2</sub>) O-sulphated hyaluronic acid derivative, and  
4 B<sub>2</sub>) N-sulphated hyaluronic acid derivative.
- Sub B5  
1 5. The polyurethane according to claim 4, wherein the hyaluronic acid derivatives  
2 used to prepare the starting sulphated hyaluronic acid A<sub>2</sub> and B<sub>2</sub> are selected from  
3 the group consisting of :  
4 • the partial esters of hyaluronic acid containing at least one free carboxylic  
5 function and the remaining carboxylic function esterified with alcohols of the  
6 aliphatic, aromatic, arylaliphatic, cycloaliphatic, heterocyclic series,  
7 • the partial crosslinked esters containing at least one free carboxylic function  
8 and the remaining carboxylic functions are esterified with the alcoholic function  
9 of the same hyaluronic acid or of a different chain,  
10 • the partial crosslinked esters containing at least one free carboxylic function  
11 reacted with a polyalcohol of the aliphatic, aromatic, arylaliphatic, heterocyclic  
12 series, and wherein crosslinking is thereafter generated by means of spacer  
13 chains.
- sub A2  
1 6. The polyurethane according to any of claims 1-5 of formula (I)

21



or formula (II)



wherein PU is a residue of the polyurethane chain, Hsulph is a residue of the sulphated hyaluronic acid or a sulphated hyaluronic acid derivative containing at least one free carboxylic function.

7. A process for preparing the polyurethane of formula (I) comprising the following steps :

- Sub B9
- i) the polyurethane (IV) is reacted with bromoacetic acid (VII) in the presence of N,N'-dicyclohexylcarbodiimide (DCC), to obtain the adduct of formula (III) ;
  - ii) the adduct (III) coming from step i) is reacted with HOOC-Hsulph, thereby

Sub B9  
obtaining the compound of formula (I).

8. A process for preparing the polyurethane of formula (II) comprising the following steps :

i') HOOC—Hsulph is reacted with hexamethylenediisocyanate (HMDI) (V), to obtain the adduct of formula (VI) ;

ii') the adduct (VI) coming from step i') is reacted with the polyurethane (IV) to obtain the desired product (II).

9. Haemocompatible material comprising at least one polyurethane according to any of claims 1-6.

10. Haemocompatible material consisting of at least one polyurethane according to any of claims 1-6.

11. The haemocompatible material according to claim 9, further comprising a pharmaceutically active substance.

12. The haemocompatible material according to claim 11, wherein said pharmaceutically active substance is selected from the group consisting of antibiotics, antiinfective, antimicrobial, antiviral, cytostatic, antitumoral, anti-inflammatory, wound healing agents, anaesthetics, cholinergic or adrenergic agonists or antagonists, antithrombotic, anticoagulant, haemostatic, fibrinolytic, thrombolytic agents, proteins or their fragments, peptides, polynucleotides, growth factors, enzymes and vaccines.

13. The haemocompatible material according to any of claims 9, 11 and 12, further comprising at least one natural, synthetic or semisynthetic polymer.

14. The haemocompatible material according to claim 13, wherein said natural polymer is selected from the group consisting of collagen, collagen coprecipitates and glycosamino glycans, cellulose, polysaccharides in the form of gels such as chitin, chitosan, pectin or pectic acid, agar, agarose, xanthane, gellan, alginic acid or the alginates, polymannan or polyglycans, starch and natural gums.

15. The haemocompatible material according to claim 13, wherein said semisynthetic polymer is selected from the group consisting of collagen crosslinked with agents such as aldehydes or precursors of the same, dicarboxylic acids or their halides, diamines, derivatives of cellulose, hyaluronic acid, chitin or

Sub B11  
5 chitosan, gellan, xanthane, pectin or pectic acid, polyglycans, polymannan, agar,  
6 agarose, natural gum and glycosamino glycans.

1 16. The haemocompatible material according to claim 13, wherein said synthetic  
2 polymer is selected from the group consisting of polylactic acid, polyglycolic acid  
3 or copolymers of the same or their derivatives, polydioxanes, polyphosphazenes,  
4 polysulphonic resins and PTFE.

1 17. The haemocompatible material according to any of claims 9-16, in the form of  
2 sponges, films, membranes, threads, tampons, non-woven fabrics, microspheres,  
3 nanospheres, gauzes, gels and guide channels.

1 18. Industrial or medical articles or devices made with or coated with the  
2 haemocompatible material according to any of claims 9-16.

Sub B13  
1 19. The industrial or medical articles or devices according to claim 18, wherein  
2 said devices are selected from the group consisting of catheters, guide channels,  
3 probes, cardiac valves, soft tissue prostheses, prostheses of animal origin such as  
4 cardiac valves from pigs, artificial tendons, bone replacements or cardiovascular  
5 prostheses, contact lenses, blood oxygenators, artificial kidneys, hearts, pancreas  
6 and livers, blood bags, syringes, surgical instruments, filtration systems, laboratory  
7 instruments, containers for cultures and for cell and tissue regeneration, supports  
8 for peptides, proteins and antibodies.

Added  
F57